FX-D QUARTZ

REPAIR MANUAL

YASHICA CO., LTD., TOKYO

Printed in Japan 810901

DISMANTLING PROCEDURE

Outside Covers

1. Bottom cover removal:

(1) Remove three bottom cover setscrews (61812529).
MD. light–proof plate (139680) and sprocket button (139651).

2. Top cover removal:

(1) Remove the rewinding knob ass'y and three ASA dial ass'y setscrews which hold the ASA dial ass'y.

(2) Remove the winding lever dress plate (152634) and the winding lever setscrew (counterclockwise), or otherwise the winding lever dress plate and winding lever setscrew can be removed together by turning it with a piece of rubber (turn it counterclockwise). Remove winding lever spring and top cover nut (322312).

(3) Remove the release button ass'y by turning it with a piece of rubber (turn it clockwise) and three shutter dial setscrews (61913024) which hold the shutter dial ass'y.

(4) Remove the release socket decorating ring.

(5) Remove five top cover setscrews (61912529 x 2, 61903029 x 2, and 61912029). It is possible to remove the top cover in the upward direction.

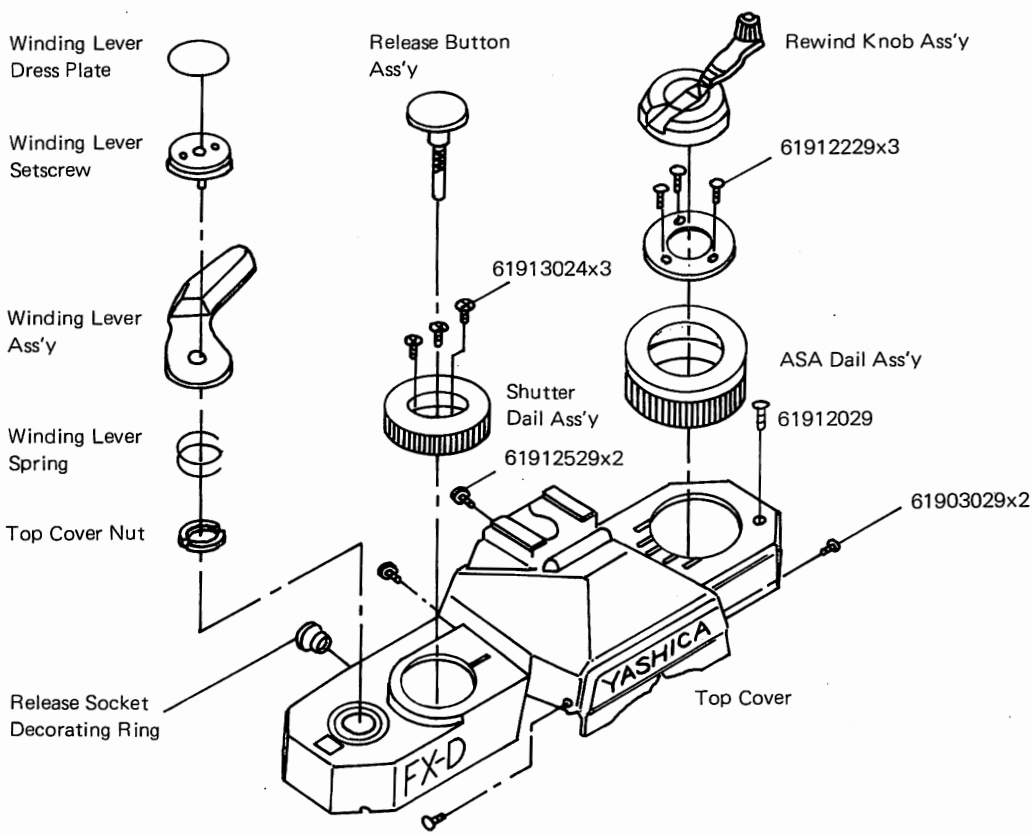


Fig. 1

3. Removing leathers:

(1) Peel off the leathers of right and left sides.

Notes: This leather is the selfstick type, it is reusable. (However, since the edge easily peels off when replaced, use additional leather adhesive if necessary.)

4. Mount cover sub ass'y removal:

(1) Remove four mount cover setscrews (63912224), the mount cover sub ass'y can be removed.

Mirror Box Ass'y Removal:

The mirror box can be removed together with the shutter base plate ass'y, ASA base plate ass'y and Amplifier ass'y.

1. Unsolder ten lead wires of flexible printed circuit.

At bottom of the body (six lead wires)

(1) Green lead wire from the connector base.
(2) Violet and orange lead wires from the TF switch.
(3) Back and pink lead wires from the release magnet.
(4) Red lead wire from the battery case.

On the pentaprism (four lead wires)

(1) Yellow, black and brown lead wires from the shutter.
(2) Green lead wire from the release socket.

2. Shutter base plate ass'y removal:

(1) Remove two shutter base plate ass'y setscrews (61912522) holding the shutter base plate ass'y to the body.

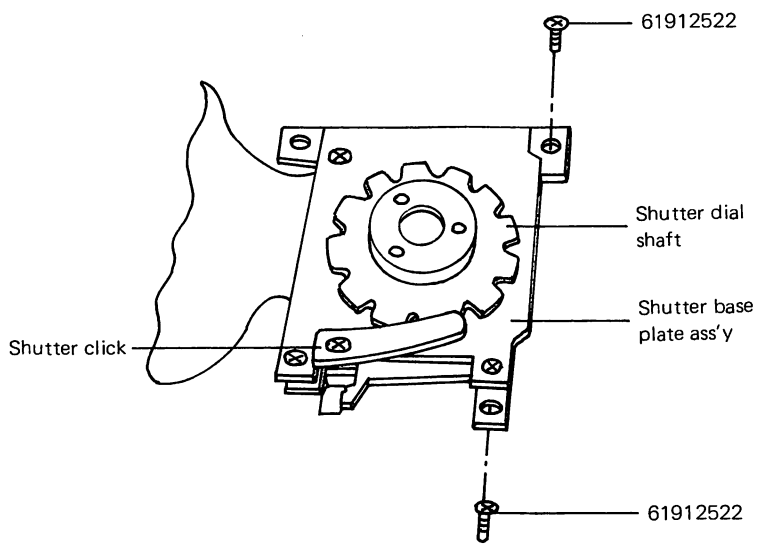


Fig. 2

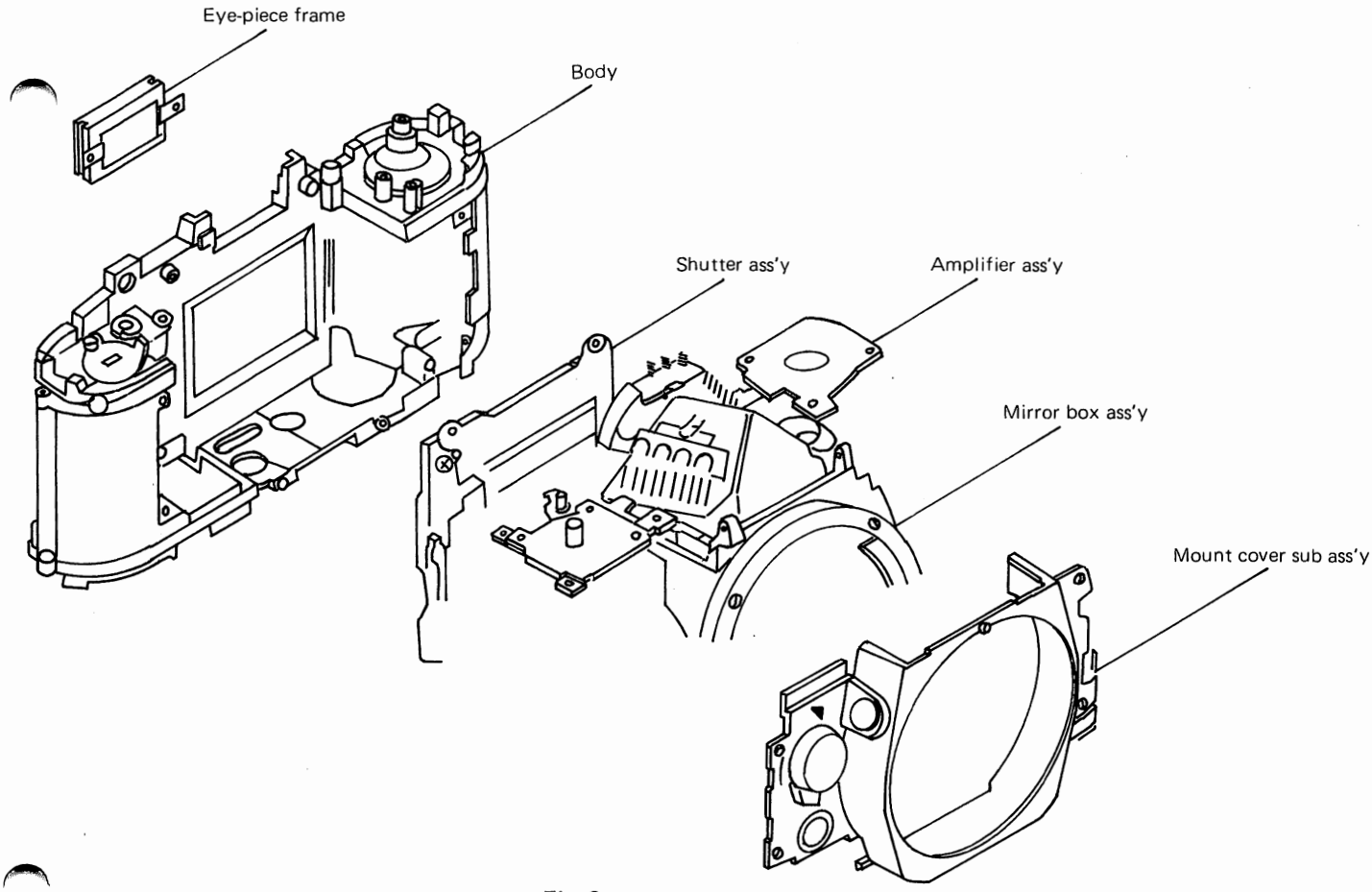


Fig. 3

3. ASA base plate ass'y removal:

(1) Remove the rewind shaft holder nut which holds the ASA dial shaft with ASA click plate ass'y and ASA contact holder ass'y.

(2) Remove the ASA lock spring shaft, ASA lock spring and E-ring.

(3) Remove one GS-ring, ASA lock lever ass'y, and ASA lock lever shaft.

Note: Do not reuse the removed GS-ring. (Reusing will cause malfunction)

(4) Remove two E-rings (E-15) and ASA reverse lever.

(5) Remove one ASA base setscrew (61912522) which holds ASA base ass'y.

4.

(1) Remove two setscrews at bottom of body which hold the Amplifier ass'y to the body.

(2) Remove the eyepiece frame.

5. Mirror box ass'y removal:

(1) Remove the two mirror box setscrews (61927024x2) at the back and two mirror box setscrews (132143x2) at the front. Carefully pull out the mirror box ass'y with Amplifier from the body.

* When mirror box is put aside,
  make sure that the mount surface is placed downward.
* The mirror box consists of six basic components: a pentagonal framework, ML base plate (right), MC base plate (left), AVR base plate (right), QR base plate (lower surface), and the mirror box main body.
* Be careful to keep clean the release magnet of QR base plate.

≪ Adjustment ≫

1. AVR (Aperture Variable Resistor) base plate at contact position:

When mounting the AVR base plate, set the F. stop connecting ring to the stopper on-the open side, and AVR gear at the position where its arrow mark (→) is directly in the front. At this position, the contact below AVR gear perfectly gets on the resistor plate and is in the start position.

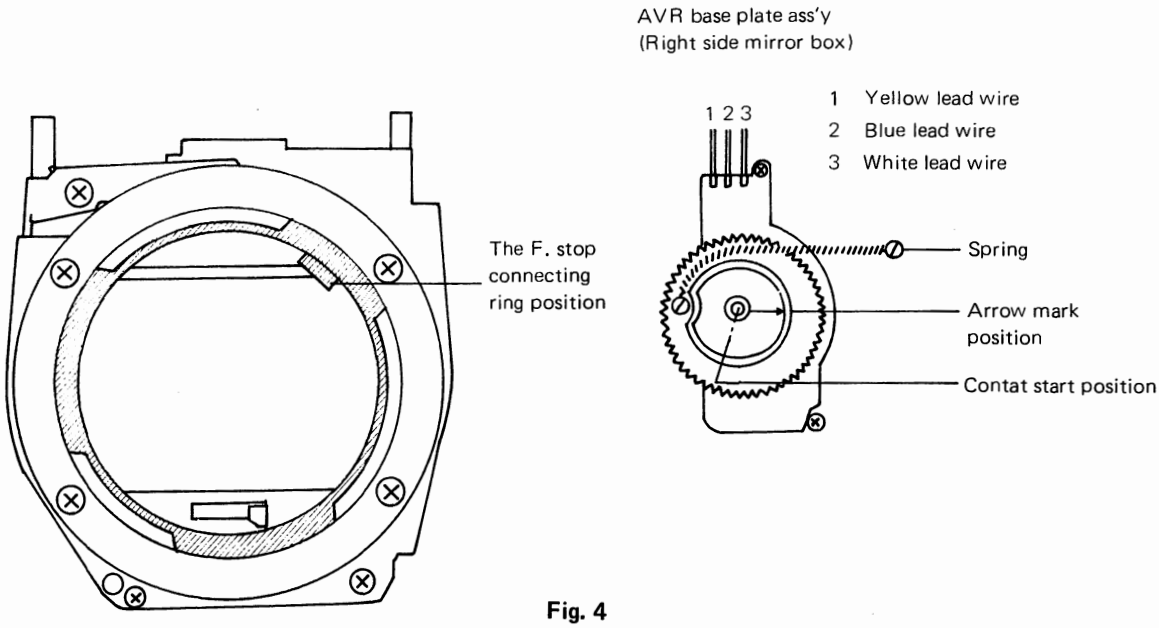


Fig. 4

2. Mirror position adjustment and finder focus adjustment:

(1) Horizontal adjustment of mirror.

(2) 45° adjustment of mirror.

(3) Upward and downward location of mirror and fine a adjustment of finder focus.
The rough adjustment (0.1 mm or more) of finder focus is done by exchanging the washer under the pentagonal frame work. (Since visual field rate is 95%, the rough adjustment of finder focus generates parallax due to ML base plate.)

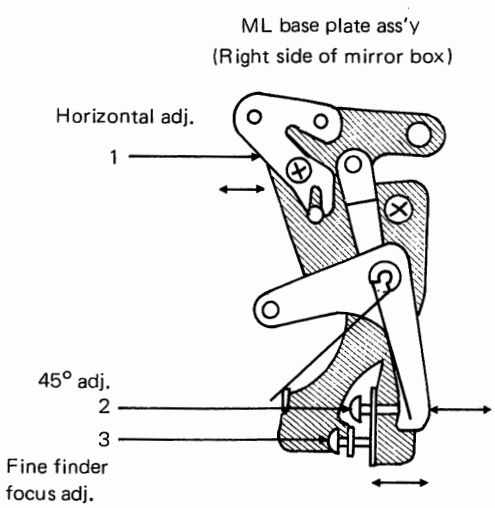


Fig. 5

* There are seven types of adjusting washers for focussing.
0.05, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7 mm.

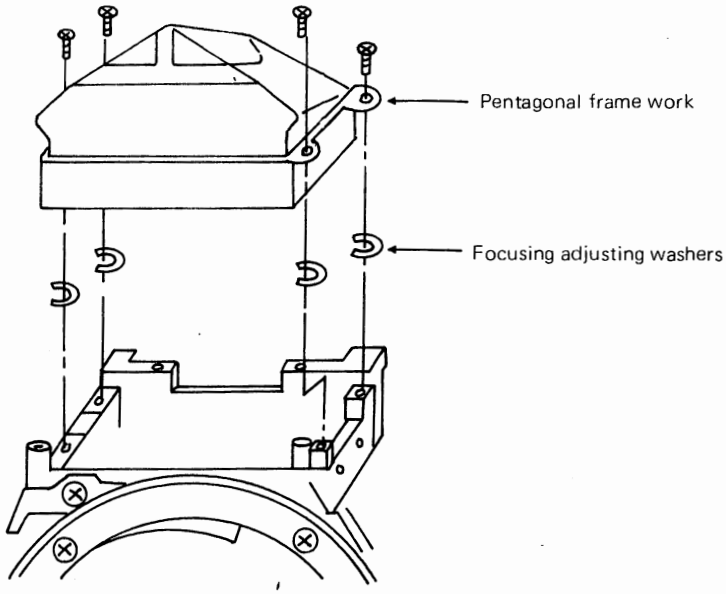


Fig. 6

Shutter Ass'y Removal:

(Mirror box ass'y must be removed)

(1) Remove the three shutter setscrews (61824522 x 2 and 61924022 x 1).
Two setscrews are located at the front upper part and one is located under the body light-proof moquette. Then, pull off the shutter upward.

Counter Base Plate Ass'y Removal:

(1) Remove counter reverse lever spring (152870).
(2) Remove three setscrews (61923024x2 and 147816x1).
Then remove the counter base plate be careful not to damage counter G-1.
(3) Remove counter G-1.
* When the head of counter G-1 is damaged, it skips two or three frames.

≪ Remarks for reassembling ≫

* Turn the notched section of counter G-1 in the opposite direction of the winding shaft.
* The counter position is the stop position of the winding shaft ass'y. Therefore, when assembling the counter base plate ass'y, it is necessary to pay attention to the above.

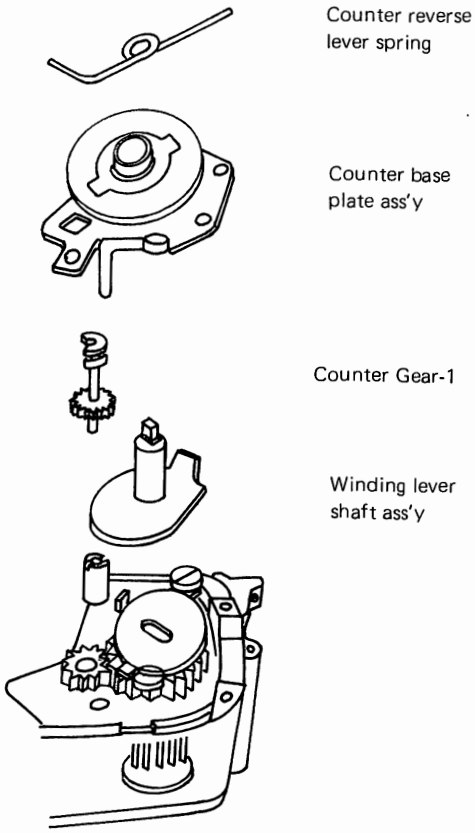


Fig. 7

Winding Base Plate Ass'y Removal:

(at bottom of the body)

(1) Remove the MD cap ring setscrew (the screw is counterclockwise) in the MD cap ring, which holds the MD cap ring.

(2) Remove the SM. set lever fixer setscrew (61913024) and two connector base setscrews (61913024 x 2), remove the SM. set lever fixer with the connector base by which the SM. set lever ass'y can be removed.

(3) Remove the set cam plate ass'y.

* The MD cap ring and the set cam plate ass'y are pressed in against the winding shaft. Carefully and gently twisting the MD cap ring and set cam plate ass'y so the hole should not be made larger, separate them from the shaft.

* The SM. set lever, MD cap ring and the set cam plate ass'y are individual parts for composition, the SM. set lever is connected to the hole and joggle of the cam set plate ass'y.

(4) Remove anti-rewind collar setscrew (61814024), anti-rewind collar and anti-rewind claw.

(5) Remove the three winding holder setscrews (63913024x3) the winding holder with winding spring.

(at upper part of the body)

(6) Remove two winding base plate ass'y setscrews (61813524x2) and shutter base plate post (162610), the winding base plate ass'y can be removed.

* To replace the sprocket and spool remove the winding base plate ass'y in the same way.

≪ Winding Base Plate Mounting ≫

(at upper part of the body)

(1) Mount the winding base plate and the winding shaft.

(2) Agree the convex part pulled by the winding lever shaft ass'y with the notched part made in the counter reverse lever at the back side of the body. See Fig. 7.
Then, push the shaft downward so that the winding ratched claw engages with the groove of the winding A-gear.

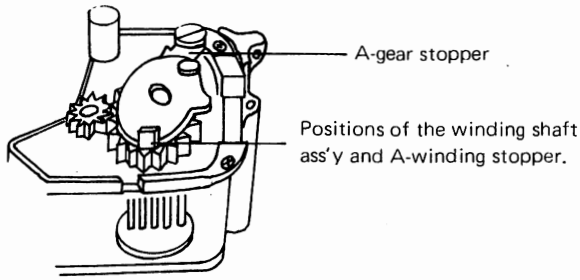


Fig. 8

(at bottom of the body)

(3) Attach the winding holder.
(4) Insert the winding spring.
Put in the set cam plate ass'y and connect the winding spring.
(5) Mount the anti-rewind claw and the anti-rewind claw collar at the position shown in the Fig. 9. and connect the anti-rewind claw spring.

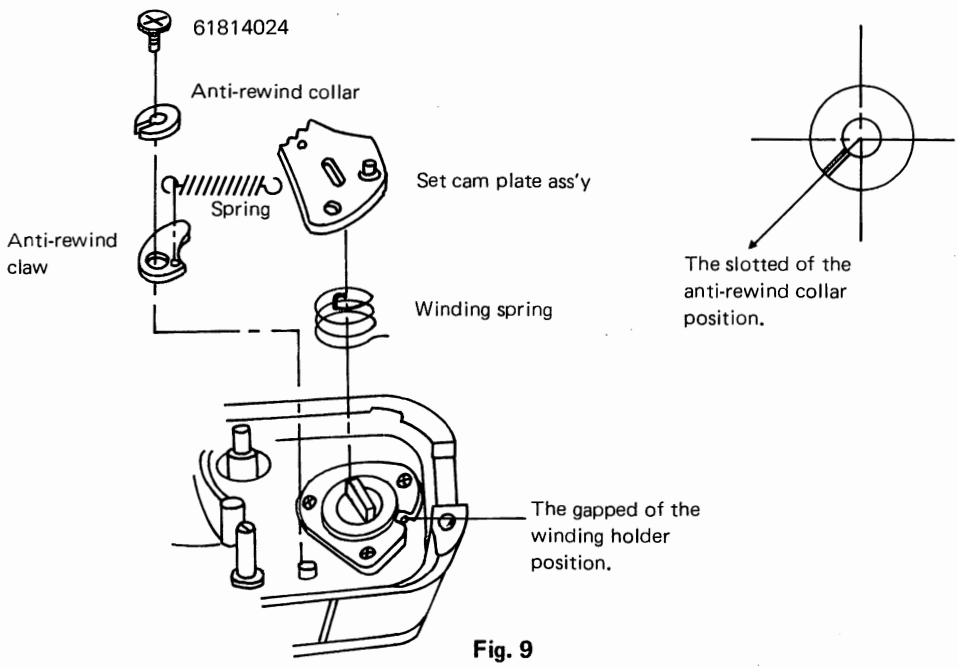


Fig. 9

(at upper part of the body)

(6) Turn the convex part at upper side of winding shaft ass'y one-half (1½ time) to the counterclockwise to provide the spring with a restoring force, and set the winding shaft ass'y at the position just opposite to the notched part.
(7) Mount the winding lever shaft ass'y at the correct position referring to the counter base plate ass'y, and install the counter base plate ass'y so that the winding head can be limited by the counter base plate ass'y. See Fig. 7.

(at bottom of the body)

(8) Mount the SM. set lever.
Put it in the joggle of the set cam plate ass'y.

(9) Mount the MD. cap ring and set screw (turn it clockwise).

(10) Mount the winding obstruction lever ass'y, washer, snap ring and connect winding obstruction lever spring.

≪ Adjustment ≫

o Anti-rewind claw adjustment.
After A-gear stopper is engaged (upper part of the body) the anti-rewind claw (bottom of the body) should be released.

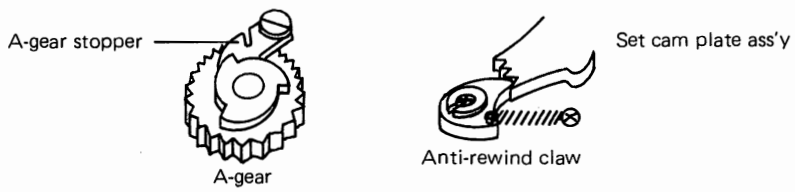


Fig. 10

o TF-switch adjustment.
The shutter must not actuate at the lever return after winding when the winding obstruction lever is located at position B or C of the MD. cap ring. Be sure to actuate the shutter at position $\frac{A}{2}$ of A.

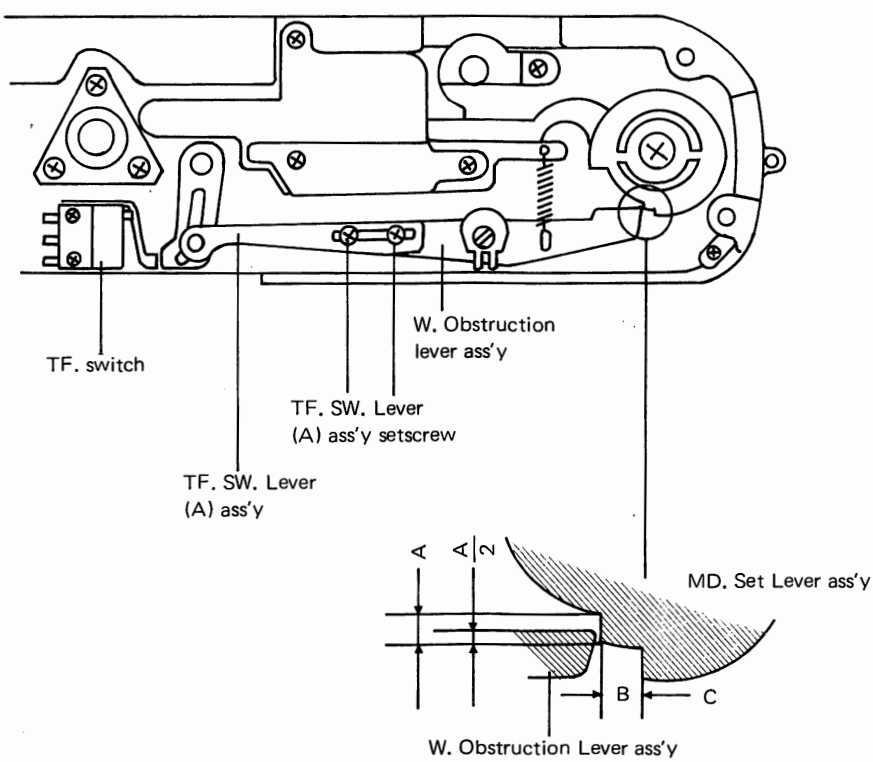


Fig. 11

Amplifier Replacement Procedure

- Replace Amplifier after removing the top cover, bottom cover, and mount cover sub ass'y.

(1) Unsolder 13 lead wires.
(at bottom of the body)

- Green lead wire from the connector base.
- Violet and orange lead wires from the TF. switch.
- Black and pink lead wires from the release magnet.
- Red lead wire from the battery case.
(at upper of the body)
- Yellow, black and brown lead wires from the shutter.
- Yellow, blue and white lead wires from the AVR base plate.
- Green lead wire from release socket.

(2) Removal of Amplifier setscrews.

- Remove the shutter dial shaft stopper, its shutter dial shaft ass'y and three shutter base setscrews (61912522x3).
- Remove one combination connector setscrew (63903024).
- Remove one S-LED adjusting plate setscrew (61914522) and adjusting plate.
- ASA base plate removal.
Remove the rewind shaft holder nut, its ASA dial shaft, its look spring shaft, its ASA lock lever shaft and one chrome setscrew.
- Remove three setscrews (61912522x3) to attach shoe terminal.
- Remove two lower part of Amplifier setscrews.

(3) Remove the Amplifier ass'y.

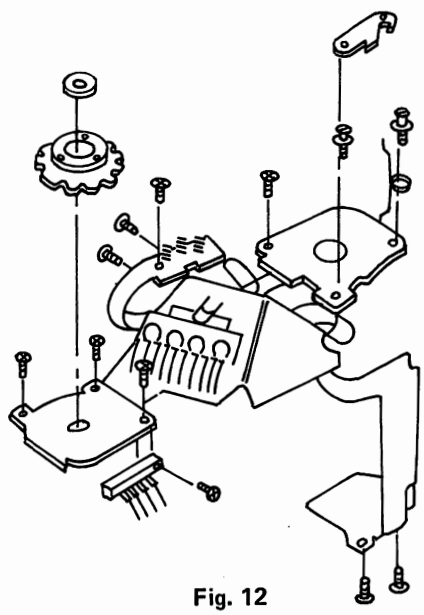
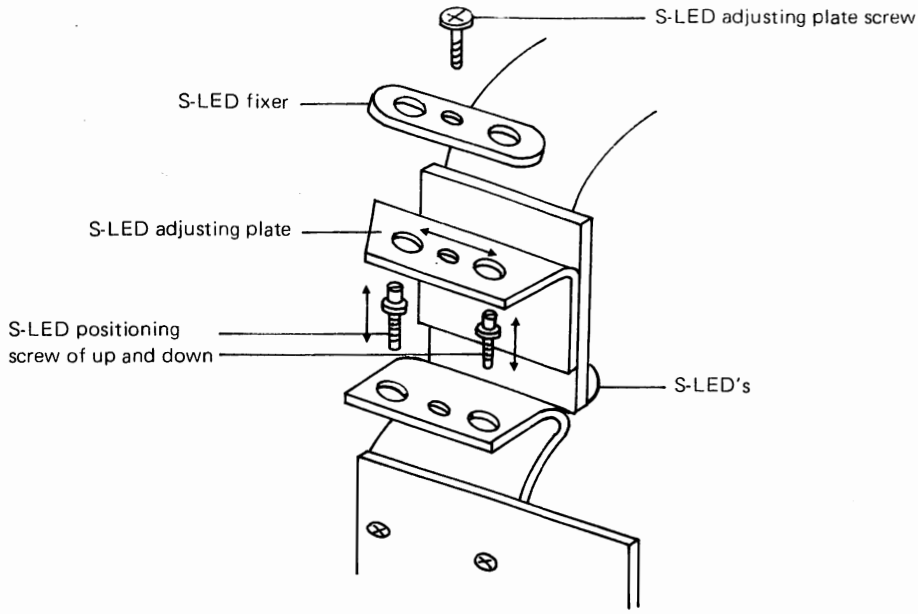
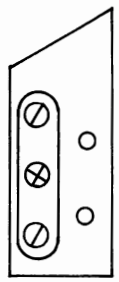


Fig. 12

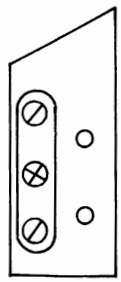
S-LED Position Adjustment

* The position of LED shall be adjusted so that all LED's from "B" to "OVER" and " ↗ " can normally be seen, when the eye in at the center of eyepiece when replacing amplifier ass'y, be sure to make this adjustment.

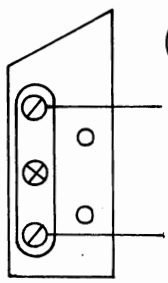




When LEDs are located on the lower side, loose the S-LED adjusting plate screw and shift the LED's toward the lens side.



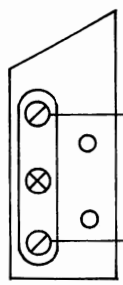
When LEDs are located on the upper side, loose the S-LED adjusting plate screw and shift the LED toward the film side.



When LED position moves on the left.

"OVER Side" turn S-LED adjusting screw to the clockwise.

"B side" turn S-LED adjusting screw to the clockwise.

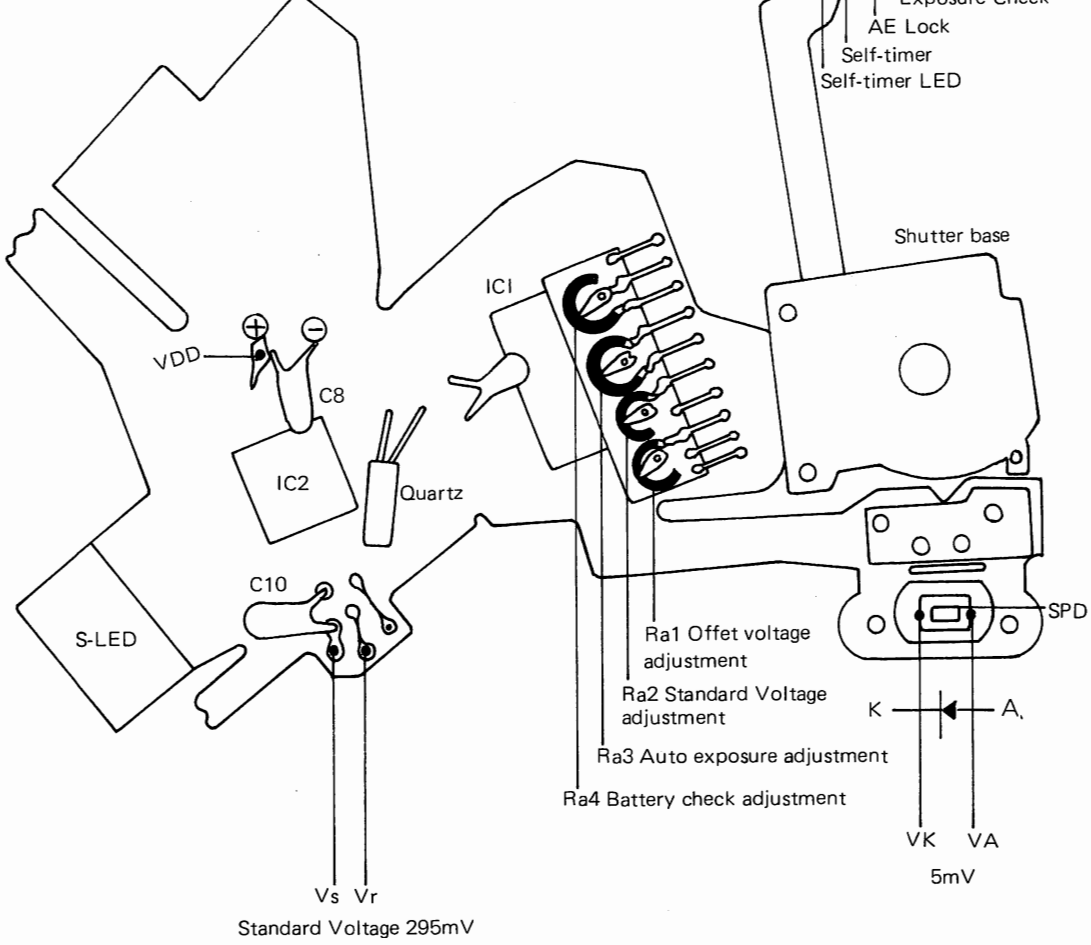


When LED position moves on the right.

"OVER Side" turn S-LED adjusting screw to the counterclockwise.

"B Side" turn S-LED adjusting screw to the counterclockwise.

Note: The three screws must be locked with glue after adjustment.



Voltage Check and Adjustment

* The adjustment should be performed as follows.

(1) ASA 100 and without lens.

(2) 2.8V from the regulated D.C power supply.

(3) Press the exposure check button before checking the respective voltage (it workes for 10 sec).

(4) Use the digital multimeter.

	Item	Method of Adjustment
Ra1	OFF-SET voltage adjustment	Connect the (+) lead of multimeter to VK and (—) lead of multimeter to VA. Voltage between VA and VK should be 5mV±5mV. * Measurement should be made by exposing to a light of more than LV12.
Ra2	Standard voltage adjustment	Connect the (+) lead of multimeter to Vr and (—) lead of multimeter to Vs. Voltage between Vr and Vs should be 295 mV ± 5 mV.
Ra3 or (By changing the position of ASA contact holder)	Auto-Exposure adjustment	Setting of the test equipment; k = 1.3, ASA100. setting of the camera with standard lens; ASA 80 · F5.6, for each luminance, the adjustment should be within ± 0.7 EV. (See figure)
Ra4	Battery check circuit adjustment	Set shutter dial at auto. The adjustment should be performed while changing the power source voltage. Shutter — LED is lit at 2.65V and blinking (1Hz) at 2.55V and lit off at 1.5V.

[STANDARD]

Auto-exposure

Adjustment of the auto-exposure should be performed by installing the standard lens to camera and setting the aperture at 5.6 with AUTO and ASA80.
When making measurement, the E.E. camera tester should be used at ASA100, K=1.3.

LV	Aperture	LED display	EV tolerance
12	F5.6	1/125	±0.7 EV
15	F5.6	1/1000	±0.8 EV
11	F5.6	1/60	±0.7 EV
8	F5.6	1/8	±0.7 EV
4	F5.6	2 sec	±0.7 EV

* LED indication is made at the standard value only, or within simultaneous lighting of 2 points of neighboring LED's.

Manual shutter speed

S-Dial Setting	Max	Standard	Min
X	11.52	10.75	10.03
1	1,035	1,000	966
2	517.6	500	483.0
4	258.8	250	241.5
8	134.0	125	116.5
15	67.00	62.5	58.31
30	33.55	31.3	29.20
60	16.75	15.63	14.58
125	8.37	7.81	7.29
250	4.49	3.91	3.40
500	2.40	1.95	1.58
1000	1.34	0.98	0.72

ms

Shutter curtain speed

The shutter curtain speed should be within 6.0 ms.

Synchro contact

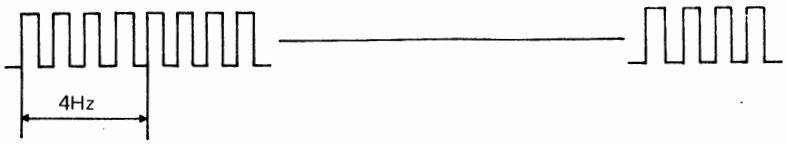
1. Synchronizer delay time
   0.3 to 0.9 ms
   Set shutter dial at "X" position and check with shutter tester.
2. Synchro contact efficiency.
   65% or more (TIME INT. 1 ms)
3. Synchro insulation resistance.
   30MΩ or more (DC500V)

Voltage Dependence

2.75V to 3.2V DC

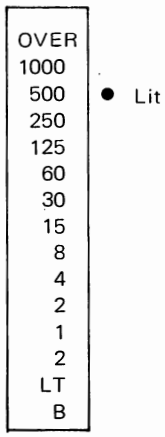
Shutter LED (S-LED) Display in the Viewfinder

S-LED blinks and makes audible tone (beep tone) at AUTO, Manual and X setting, when "Over" exposed;



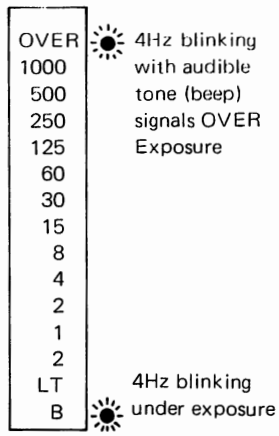
○ LED display in the viewfinder at AUTO position

Normal AE Exposure display



Exposure will be correctas long as one of the LEDs between LT and 1/1000 sec. is lit.

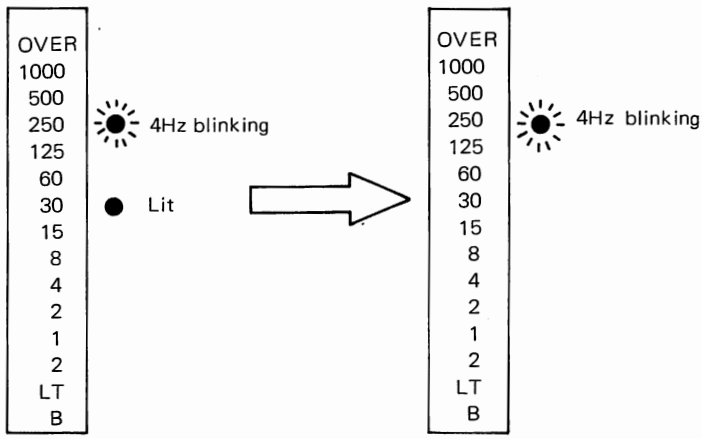
OVER and Under Exposure display.



* When selftimer is actuating the selftimer LED blinks and the S-LED in the view finder it goes off.

* When the exposure-check switch is depressed the LEDs will remain on for 10 seconds and turn off automatically. However, if the shutter is closed while the LEDs are lit, LEDs will go off after the exposure has been completed.

○ LED display in the viewfinder at Manual position

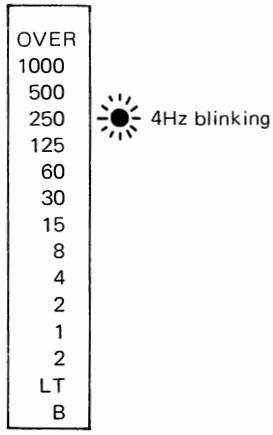


Showing actual and correct shutter speeds.

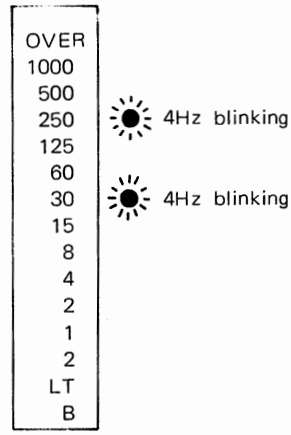
Adjust for correct shutter speed.

○ **LED display in the viewfinder at AE Lock position**

At Auto



At Manual



Lock in shutter speeds.
Aperture can be varied: continuous operation possible.

* Lights up for 10 seconds after AE Lock lever is released.

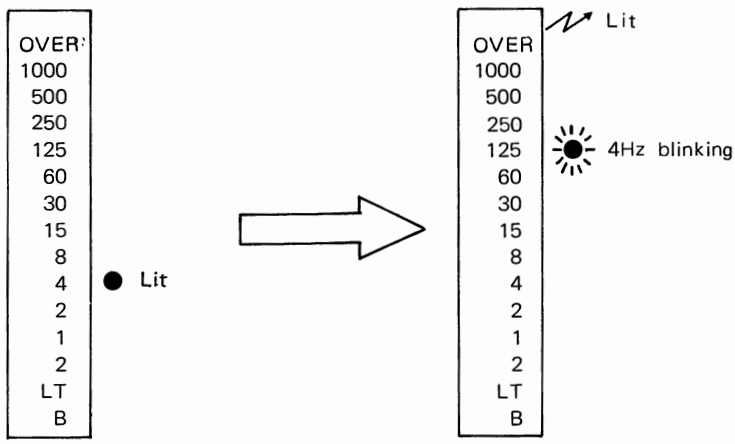
○ **(⚡) Flash mark Indication**

(With CS201 AUTO, TLA20 and TLA30 flashunits.)
When flash is fully charged, (⚡) mark is lit even unless the exposure check button is depressed.

At AUTO

Before flash is fully charged

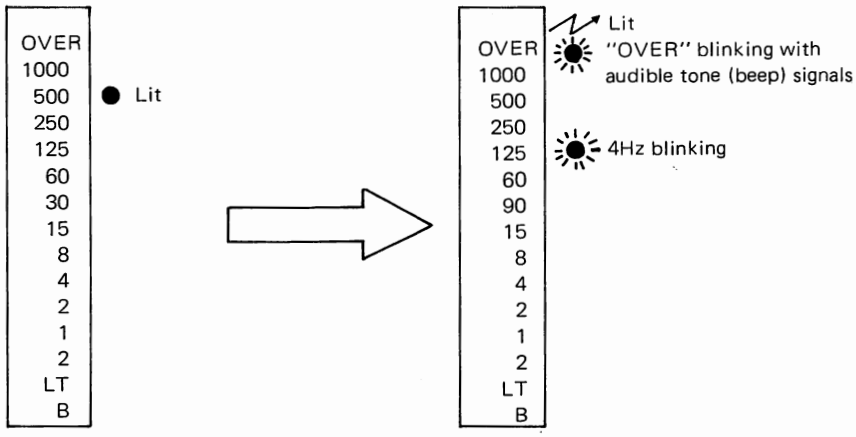
After flash is fully charged



○ When shutter LED lit in between 1/250 and OVER.

Before flash is fully charged

After flash is fully charged



At Manual

- When shutter speed is set at 1/125 ~ 1, after flash is fully charged at a set shutter speed LED blinks and (⚡) lit.
- When shutter dial is set at 1/250 ~ 1/1000, after flash is fully charged, (⚡) mark lit and 1/125 LED will lit when exposure check button is depressed. The over photometer value is not displayed.

At X

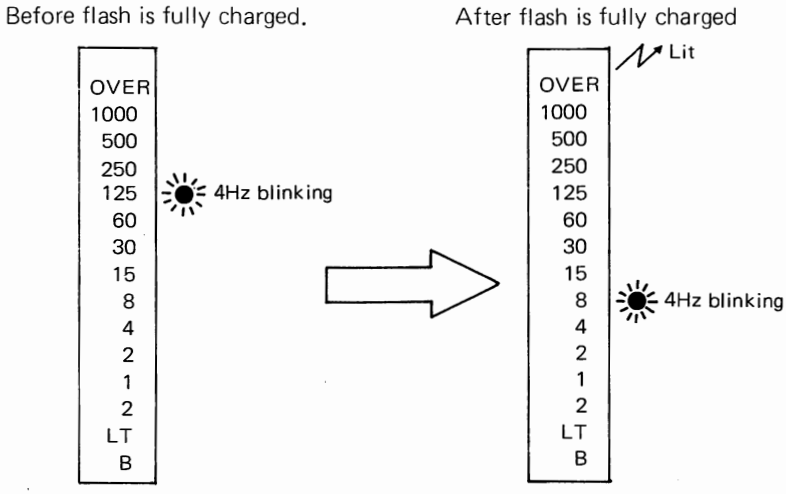
- After flash is fully charged, 1/125 LED blinks and (⚡) lit, when exposure check button is depressed.

At B

- After flash is fully charged, B LED blinks and (⚡) lit, when exposure check button is depressed.

- **At AUTO and AE Lock**

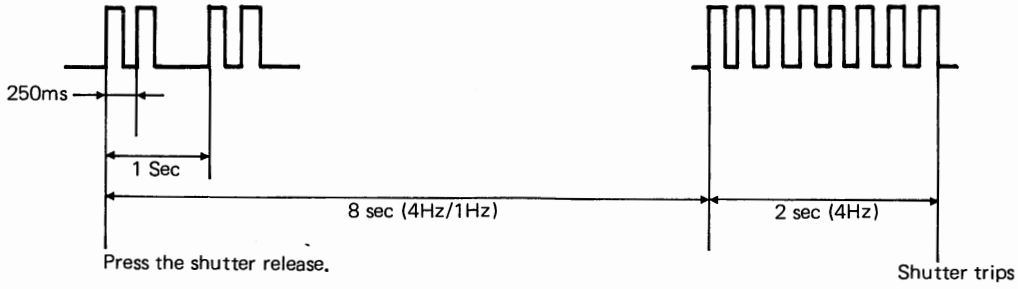
AE Lock is performed when shutter speed in between 1/125 ~ B.



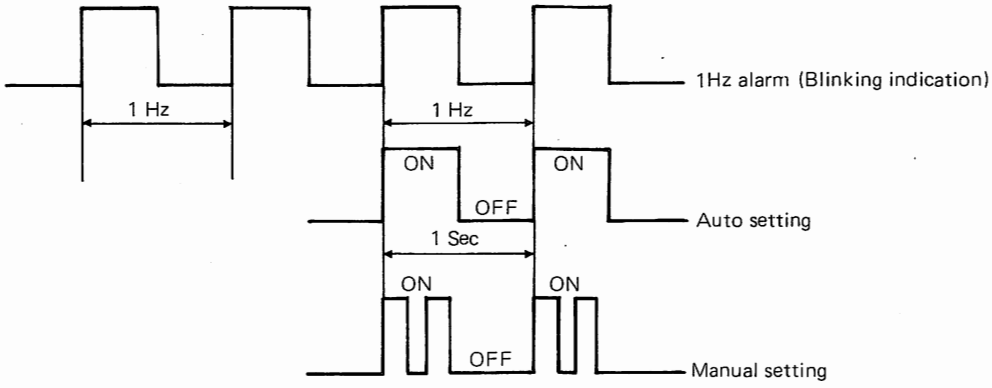
- AE Lock is performed when shutter speed in between 1/250 ~ 1/1000, after flash is fully charged OVER LED blinks with audible tone (beep) signals and (⚡) lit.

Selftimer LED Indicator

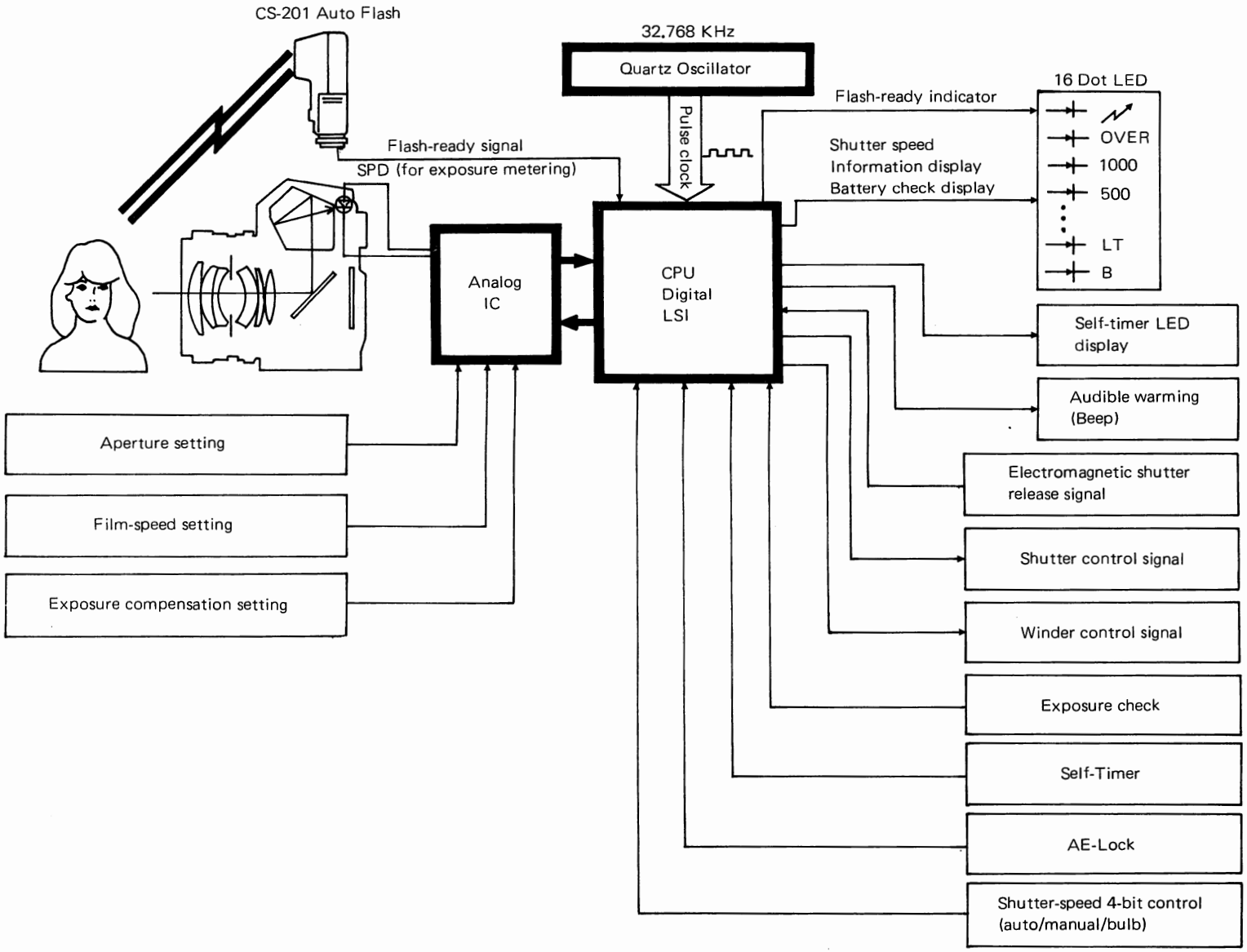
Quartz-controlled 10-sec. delayed exposure; LED blinking with audible tone (beep) signal at 4Hz for first 8 sec. . . . , then at 4Hz for last two sec.



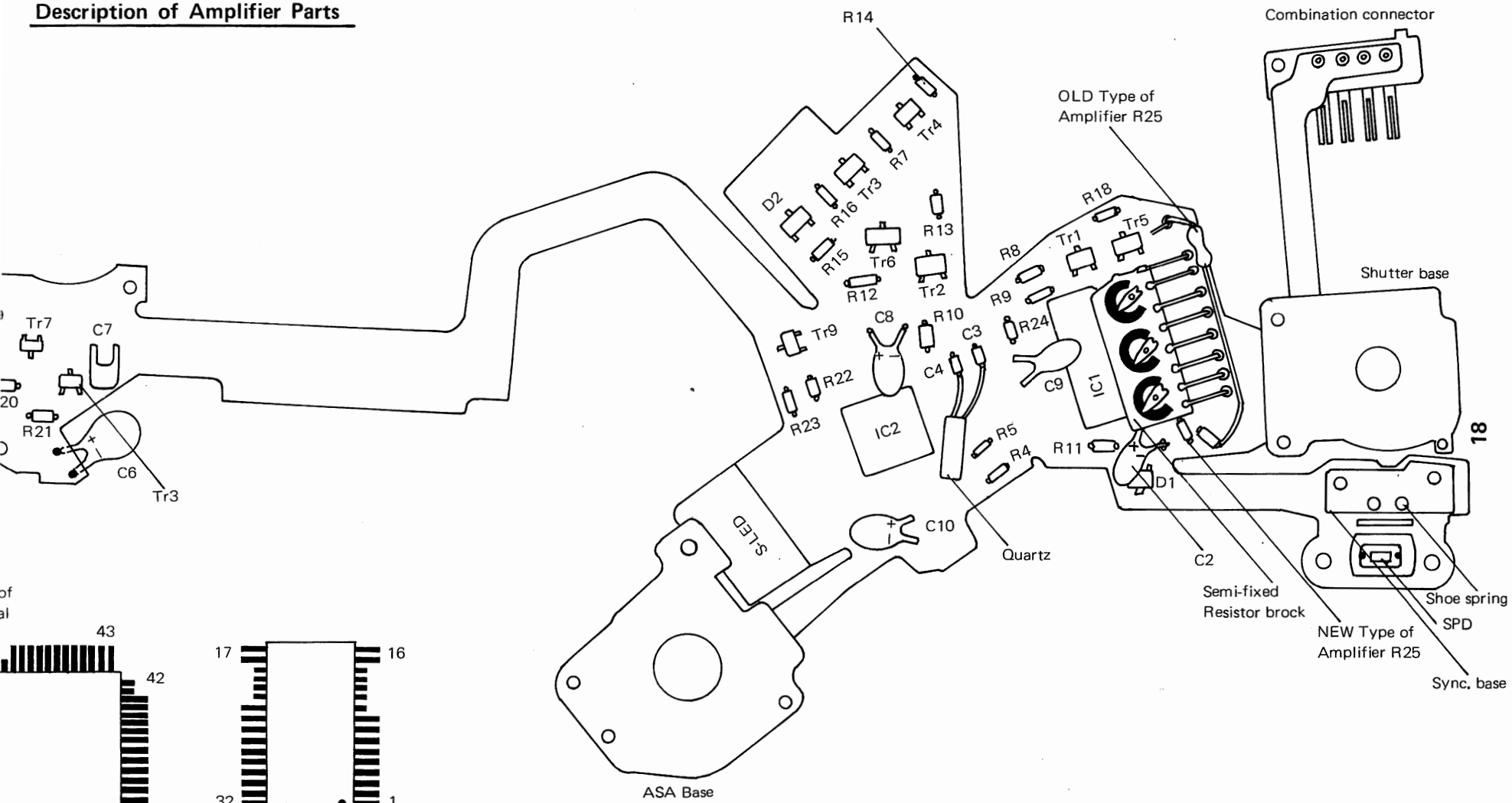
Battery Check Display (16 dot LED) 1 Hz At voltage 2.45V



FX-D Quartz circuit Diagram



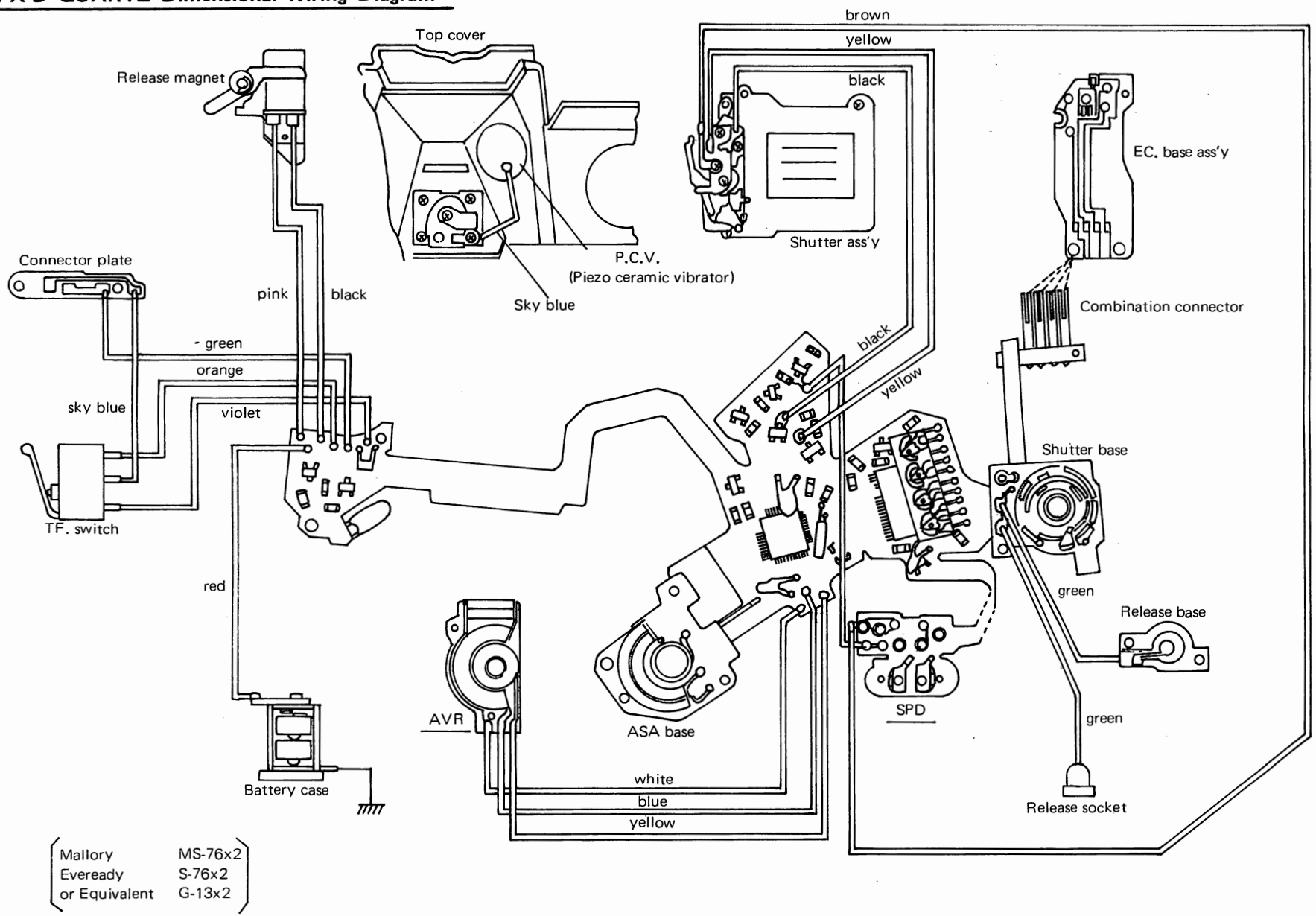
Description of Amplifier Parts



IC2
(Digital IC)

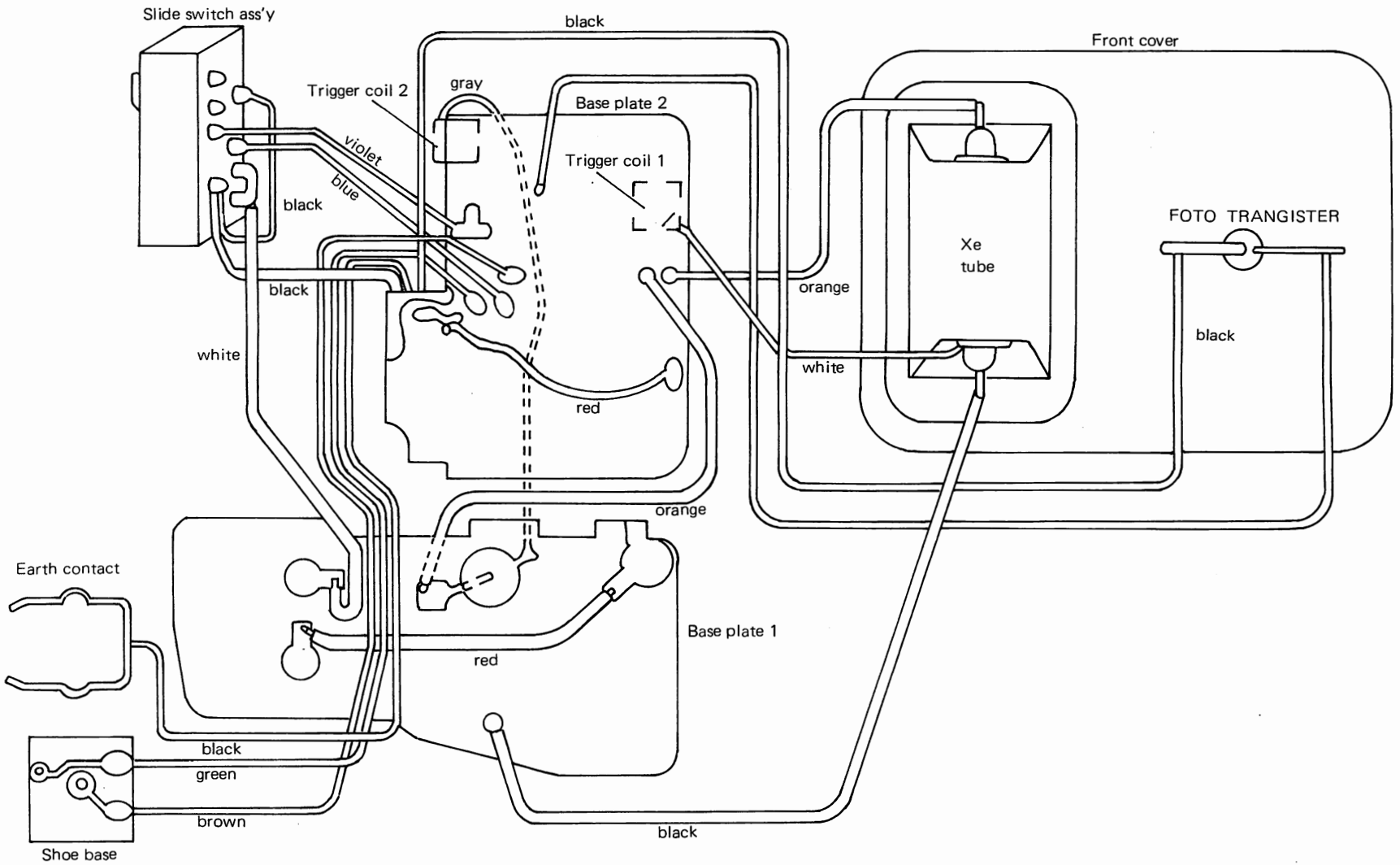
IC1
(Analog IC)

FX-D QUARTZ Dimensional Wiring Diagram



Mallory	MS-76x2
Eveready	S-76x2
or Equivalent	G-13x2

CS-201 AUTO Flash Dimensional Wiring Diagram



* The CS-201 is an auto flash unit specially designed for use on the FX-D Quartz providing a guide number of 20.

MALFUNCTION AND CAUSES

Note:
S-LED = Shutter speed LED.
F.P.C. = Flexible Printed Circuit.

1) Shutter does not operate.

1–1) Shutter does not operate, and S-LED does not light.

Check:
(1) Shutter Base Plate. (Bad contact of release switch).
(2) Green lead wire of release circuit.
(3) Bad contact between shutter board and F.P.C.
(4) R12, R13.
(5) Battery case bad contact. (loose screws, bad revetting of lug plate).
(6) Red, lead wire from battery case.
(7) Loose screw on F.P.C.
(8) TR-2.
(9) R10, R24.
(10) C-3, C-4, C-9
(11) Quartz.
(12) F.P.C.
(13) Amplifier.

1–2) Shutter does not operate, but shutter speed LEDs light.

Check:
(1) TF-switch.
(2) Anti-winding lever.
(3) Trigger switch. (should be ON when shutter is cocked.)
(4) Loose ground screw on the shutter circuit board.
(5) Yellow lead wire between shutter and F.P.C.
(6) F.P.C.
(7) TR-7, TR-8.
(8) R19, R20, R21.
(9) C-6.
(10) Release magnet.
(11) QR base plate.

1–3) Shutter does not work with winder.

Check:
(1) TF-switch.
(2) Bad contact between connector base and winder.

2) Auto exposure is incorrect.

2–1) Shutter remains open ("B" LED lights), or extremely under exposed. (over LED remains light.)

Check:
(1) Incorrect standard voltage.
(adj. Ra2 to 295mv±5mv.)
(2) Incorrect off-set voltage.
(adj. Ra1 to 5mv±5mv.)
(3) Variable resistors. (Ra1–Ra4)
(4) SPD.
(5) Starting position of AVR brush contact.
(6) AVR.
(7) ASA resistor.
(8) F.P.C.
(9) Amplifier.

2–2) "B" LED indication appears at LV15.

Check: (1) Incorrect Off-Set voltage against high light. (re-adjust).
(2) F.P.C.
(3) Amplifier.

3) Shutter speed LED does not light properly at manual mode.

3–1) **Check:** (1) Shutter dial contact.
(2) Shutter base plate.
(3) Dirty shutter base plate.
(4) F.P.C.
(5) Amplifier.

4) Wrong indication of shutter speed LEDs. (More than three shutter speed LEDs come on simultaneously, or No LED comes on).

4–1) Incase of "Over"-"B" indication.

Check: (1) Shutter speed LED.
(2) F.P.C.
(3) Amplifier.

4–2) In case of ↗ (flash) mode.

Check: (1) Shutter speed LED.
(2) Bad contact of accessory shoe.
(3) TR-9, R22, R23.
(4) F.P.C.
(5) Amplifier.

5) No beep at all. (self-timer or over-exposed situation.)

5–1) Beep at "OVER" indication, but not working when self-timer is used.

Check: (1) TR-3.
(2) R14, R15.
(3) F.P.C.

5–2) No beep at "OVER" indication, but it is working when self-timer is used.

Check: (1) D2.
(2) F.P.C.

5–3) No beep or very small beep, when "OVER" LED indication or self-timer is used, but self-timer and "OVER" indication itself are normal.

Check: (1) TR-4.
(2) R16, R17.
(3) Shoe spring of amplifier.
(4) P.C.V. (Piezo Ceramic Vibrator.)
(5) F.P.C.

5–4) Tone of P.C.V. is not normal.

Check: (1) F.P.C.
(2) Amplifier.

6–1) Too much stand by current.

Check: (1) AVR base plate is short curcuited to the body.
(2) ASA base plate is short circuited to the body.
(3) Uninsulated parts or electrical components touch the Top cover.
(4) TR1-9, C-6, C-8, C-10, R19.
(5) F.P.C.
(6) Amplifier.

6–2) When stand-by current drains about 4-7 mA.

Check: (1) Release circuit is grounded to the body. (release switch, release socket, connector plate, etc. . . .)
(2) R12, C-7.

7) Incorrect shutter speed.

7–1) Check: (1) TR-6.
(2) Yellow lead wire from trigger switch.
(3) Black lead wire from shutter magnet.
(4) F.P.C.
(5) Amplifier.

8) Defective Self-timer.

8–1) Check: (1) Mount cover ass'y. (Self-timer switch, Self-timer LED).
(2) Combination connector contact.
(3) TR-1, TR-5.
(4) R8, R9, R18.

9) Defective "AE". (AE-lock).

9–1) Check: (1) Mount cover Ass'y. (AE switch etc.)
(2) Combination connector contact.
(3) F.P.C.
(4) Amplifier.

10) Defective Flash LED indicator. (Flash mode).

10–1) Check: (1) D-1, R10.
(2) Same as 4–2).

11) Battery warning indication. (Battery check)

At "AUTO" ..... 1 Hz blinking.
At "MANUAL" ..... 1 Hz blinking. (When less than 2.45 volts.)

Check: (1) Ra4.
(2) R6, R7.
(3) F.P.C.
(4) Amplifier.

12) In extremely darkness, "B" LED lights, then in a few seconds, "B" LED moves up then "OVER" LED lights.

Check: (1) R25. (if R25 is omitted, add 300K)-location – See attached diagram.